

Claim Amendments

1. (Currently Amended) An apparatus comprising:
 - a switched capacitor transformer comprising
 - a first capacitor comprising a first terminal and a second terminal;
 - a first input port and a second input port; and
 - a first output port and a second output port;
 - a voltage reference circuit to provide a reference differential voltage at the first and second input port;
 - a functional unit coupled to the first and second output ports to receive the reference differential voltage and to operate based upon the reference differential voltage, and
 - a clock generator having a cycle of operation and coupled to the switched capacitor transformer
- so that the first and second terminals of the first capacitor are coupled to the first and second input ports, respectively, and the reference differential voltage is developed between the first and second terminals of the first capacitor during a first portion of the cycle of operation, and
 - so that the first and second terminals of the first capacitor are coupled to the first and second output ports, respectively, and the reference differential voltage is developed between the first and second output ports during a second portion of the cycle of operation.

2. (Canceled).

3. (Currently Amended) The apparatus as set forth in claim 2 1, wherein the first and second portions of the cycle of operation are non-overlapping, and there is no portion of the cycle of operation for which the first terminal of the first capacitor is coupled to both the first input port and the first output port or for which the second terminal of the first capacitor is coupled to both the second input port and the second output port.

4-7. (Canceled).

8. (Currently Amended) The apparatus as set forth in claim 1, wherein the switched capacitor transformer further comprising:

a second capacitor comprising a first terminal coupled to the first input port and a second terminal coupled to the second input port; and

a third capacitor comprising a first terminal coupled to the first output port and a second terminal coupled to the second output port.

9. (Currently Amended) The apparatus as set forth in claim 3, wherein the switched capacitor transformer further comprising:

a second capacitor comprising a first terminal coupled to the first input port and a second terminal coupled to the second input port; and

a third capacitor comprising a first terminal coupled to the first output port and a second terminal coupled to the second output port.

10. (Canceled).

11. (Currently Amended) The apparatus as set forth in claim 40 22, further comprising:

a clock generator ~~having a cycle of operation~~ to switch the first and second switches ON during a the first portion of the cycle of operation and to switch the third and fourth switches ON during a the second portion of the cycle of operation, wherein the first and second portions of the cycle of operation are disjoint.

12. (Original) The apparatus as set forth in claim 11, wherein for no portion of the cycle of operation does the clock generator switch the first and third switches both ON, the first and fourth switches both ON, the second and third switches both ON, or the second and fourth switches both ON.

13. (Currently Amended) The apparatus as set forth in claim 40 11, wherein the first and third switches are pMOSFETs, and the second and fourth switches are nMOSFETs.

14. (Currently Amended) The apparatus as set forth in claim 13, wherein the switched capacitor transformer further comprises ~~comprising~~:

a second capacitor comprising a first terminal connected to ~~the~~ a first input port and a second terminal connected to ~~the~~ a second input port; and

a third capacitor comprising a first terminal connected to ~~the~~ a first output port and a second terminal connected to ~~the~~ a second output port.

15. (Currently Amended) The apparatus as set forth in claim ~~40~~ 22, wherein the switched capacitor transformer further comprises ~~comprising~~:

a second capacitor comprising a first terminal connected to ~~the~~ a first input port and a second terminal connected to ~~the~~ a second input port; and

a third capacitor comprising a first terminal connected to ~~the~~ a first output port and a second terminal connected to ~~the~~ a second output port.

16. (Currently Amended) The apparatus as set forth in claim 12, wherein the switched capacitor transformer further comprises ~~comprising~~:

a second capacitor comprising a first terminal connected to ~~the~~ a first input port and a second terminal connected to ~~the~~ a second input port; and

a third capacitor comprising a first terminal connected to ~~the~~ a first output port and a second terminal connected to ~~the~~ a second output port.

17-19. (Canceled).

20. (Currently Amended) The apparatus ~~system~~ as set forth in claim 23 ~~40~~, ~~the system~~ further comprising:

a clock generator ~~having a cycle of operation~~ to switch the first and second switches of the switched capacitor circuit ON during a the first portion of the cycle of operation and to switch the third and fourth switches of the switched capacitor circuit ON during a the second portion of the cycle of operation, wherein the first and second portions of the cycle of operation are disjoint; and wherein for no portion of the cycle of operation does the clock generator switch the first and third switches both ON, the first and fourth switches both ON, the second and third switches both ON, or the second and fourth switches both ON.

21. (Canceled).

22. (New) An apparatus for distributing reference voltages, comprising a voltage reference circuit to develop the reference voltage, a functional unit to operate based upon the reference voltage, and a switched capacitor transformer comprising a capacitor and a plurality of switches that couple the capacitor to the voltage reference circuit in order to receive the reference voltage during a first period of a cycle of operation and that couple the capacitor to the functional unit in order to deliver the reference voltage to the functional unit during a second period of the cycle of operation.

23. (New) An apparatus for distributing a reference voltage, comprising

a switched capacitor circuit comprising a first and second input ports, a first and second output port, a capacitor, and a plurality of switches that selectively couple the capacitor to the first and second input ports and to the first and second output ports,

a voltage reference circuit to develop a first reference voltage between the first and second input ports,

a functional unit to operate based upon a second reference voltage developed between the first and second output ports, wherein

the plurality of switches couple the capacitor to the first and second input ports in order to develop the first reference voltage across the capacitor during a first period of a cycle of operation, and

the plurality of switches couple the capacitor to the first and second output ports in order to deliver the second reference voltage to the functional unit during a second period of the cycle of operation.

24. (New) The apparatus as set forth in claim 23, further comprising:

a clock generator to switch first and second switches of the switched capacitor circuit ON during the first portion of the cycle of operation and to switch third and fourth switches of the switched capacitor circuit ON during the second portion of the cycle of operation, wherein the first and second portions of the cycle of operation are disjoint.

25. (New) The apparatus as set forth in claim 24,

wherein the first and third switches are pMOSFETs, and the second and fourth switches are nMOSFETs.

26. (New) The apparatus as set forth in claim 23, wherein the switched capacitor circuit further comprises

- a second capacitor comprising a first terminal connected to the first input port and a second terminal connected to the second input port; and
- a third capacitor comprising a first terminal connected to the first output port and a second terminal connected to the second output port.